

**REMARKS**

The instant Amendment A is responsive to the first Office Action dated July 6, 2004. Applicants respectfully submit that claims 1-8, 10-22, 24-26, and 28-41 as set forth herein patentably distinguish over the cited references, and accordingly ask for allowance of claims 1-8, 10-22, 24-26, and 28-41 as set forth herein.

**The current status of the claims**

Claims 1-34 and 36-39 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Rochford et al. (U.S. 6,691,282, hereinafter "Rochford").

Claim 35 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Rochford.

**The Rochford reference relates to user interfacing with a containment hierarchy**

Rochford relates to a user display of "containment hierarchies." In the present application, these are called "hierarchal directory tree structures." (See at least p. 12 line 6). The containment hierarchy illustrated in Rochford corresponds to a physical system of folders within folders, starting at a top-level file folder called "World" that contains other file folders, and working through a plurality of levels of sub-folders to the bottom-level file folder which contains only files. There is a single top-level file folder and generally many bottom-level file folders. The containment hierarchy of Rochford is thus seen to be a conventional folder tree of the type used, for example, as the physical file structure in Microsoft Windows operating systems.

As discussed starting at col. 6 line 25, Rochford further contemplates employing more than one containment hierarchy. As an example, in addition to the illustrated "region" containment hierarchy, it is suggested that a second "type" containment hierarchy may be provided. It is not clear how this additional non-physical hierarchy is constructed – Rochford merely teaches that "collectively somewhere in either the computer system, software, or storage devices, the various different hierarchies must be stored." (Col. 6 lines 33-36). In particular, there is no discussion of how files are placed within these additional containment hierarchies. Files are inherently placed in the physical tree structure – as each file is created, it must be stored somewhere in the physical tree. Apparently, to support a second or additional containment hierarchy called for in Rochford, a user or

program creating a new file would need to designate, at the time of file creation, the placement of the file in each such containment hierarchy.

Rochford further discloses a novel user interface for drilling through a containment hierarchy to find a file. In previous user interfaces, such the interface illustrated in Rochford Fig. 2 and exemplified by the Window Explorer interface, many folders and files which do not contain and are not contained by the folder or file of interest are nonetheless displayed. Rochford teaches that this display of nearby files and folders is disadvantageous, because it causes the list to overflow the screen. See Rochford col. 3 lines 50-65.

Rochford overcomes this problem by removing any folder that does not contain the file or folder of interest, and by removing sibling files or folders. This produces the display of Fig. 3.

#### **The present application relates to user interfacing with a knowledge portal**

The present application relates to novel user interfacing for a knowledge portal that provides heuristic context-sensitive searching. The knowledge portal operates in conjunction with a data store that is typically organized by a conventional hierarchal tree directory (page 12 line 6). The knowledge portal is a heuristic user interface that includes a catalog 30 of objects automatically generated based upon analysis of the contents of the objects, for example using the text parser 50. See page 12 lines 10 ff. and Fig. 1. Each object is typically classified under a plurality of classifications within the catalog 30 (page 12 lines 19-20) reflecting the fact that most objects contain a variety of content. The catalog 30 also includes metadata providing additional information about the cataloged objects, such as synopses or summaries of the object contents, author information, Internet links, and so forth. The catalog, including the metadata, provides the basis for heuristic content-based searching of the data store. By "heuristic", it is meant that a user can look for related objects containing content similar to content of a current object or other K-map object of interest, without having a priori knowledge of the existence of those related objects.

The containment hierarchies of Rochford do not define a knowledge portal. There is nothing heuristic about drilling down through a containment hierarchy in order to find a file which the user is looking for. A user may stumble across a sibling file or folder contained in the same folder that contains the file or folder the user already knew about; however, even this discovery cannot be

wholly unexpected, since the user was already drilling down a related branch of the containment hierarchy. Providing multiple containment hierarchies, as suggested by Rochford, merely provides more than one pre-determined organizational structure for the data. It does not provide a mechanism for unexpected, heuristic discovery of new objects based on content.

The present application discloses novel user interfacing for use with a knowledge portal, which overcomes certain deficiencies in previous knowledge portal interfaces. It provides the user with contextual information concurrently with displaying the current object by displaying the K-map simultaneously with the current document on a single display device. Moreover, a preview pane is provided via which the user may preview an item selected from the K-map prior to loading it. For example, the preview may display a synopsis or summary taken from the knowledge portal metadata. A number of ways are provided for updating the K-map object from which the K-map is constructed, including: (i) selecting a new current object; (ii) highlighting text of interest in the document pane; and (iii) inputting a new K-map object in a text search input. Flexibly providing contextual information through this novel user interfacing improves the efficiency and effectiveness of user interaction with the knowledge portal. The node view is particularly useful in finding new content, as it provides non-hierarchical links to objects having content related to the current object or other K-map object. See at least at page 17 lines 16-24.

Rochford provides novel user interfacing with a containment hierarchy, not a knowledge portal. Moreover, the Rochford interface achieves exactly the opposite objective of the knowledge portal interface of the present application. Rather than presenting the user with additional contextual information as is done in the present application, Rochford teaches hiding contextual information to reduce screen clutter. Rochford intentionally removes higher level folders that do not contain the file or folder of interest, and removes sibling files or folders at the same level as the file or folder of interest. Comparing the novel user interface of Rochford Fig. 3 with the conventional interface of Rochford Fig. 2, it is seen that contextual information, such as the other areas of Central Ontario (Barry, Hamilton, etc.) and the other areas of Ontario (Eastern Ontario, Northern Ontario, etc.) are actually removed by the Rochford interface. The item of interest ("Toronto") is left entirely without context, except for its direct path in the predetermined "region" hierarchy.

**Claims 1-8 and 40 patentably distinguish over the references of record**

**Claim 1** calls for a user interface method for interfacing with a knowledge portal. At least a portion of a current document is displayed in a document pane. A K-map is displayed in a map pane. The K-map indicates objects which are cataloged in the knowledge portal as including content related to a K-map object. A preview object selected from the K-map is displayed in a preview pane. The document pane, map pane, and preview pane are displayed simultaneously on a single display device. A user input is received. At least one of the current object identity, the preview object identity, and a K-map parameter is updated based upon the received user input. The K-map is updated conditional upon the updating of a K-map parameter.

Claim 1 has been amended to emphasize that the subject user interface method is performed in conjunction with a knowledge portal, rather than in conjunction with a containment hierarchy, and to incorporate subject matter of canceled claim 9.

Rochford does not relate to knowledge portals. Accordingly, it does not teach or suggest displaying a K-map (i.e., knowledge map) that indicates objects which are cataloged in a knowledge portal as including content related to a K-map object. The Office Action at ¶ 4 identifies the file folder hierarchy of Rochford as corresponding to a K-map. However, there is no suggestion in Rochford that the objects in the file folder hierarchy indicate objects cataloged in a knowledge portal as containing content related to a K-map object. Indeed, far from illustrating a K-map, Rochford teaches away from a K-map by teaching removal of folders not containing the current folder and by teaching removal of sibling files or folders from the display, so as to keep it on a single screen without requiring scrolling. Such removal of neighboring folders and files reduces the provided contextual information.

Applicants also do not find a preview pane in Rochford. In Fig. 3, "Area 1", "Area 2", ... are the contents of the current folder. If the user changes the current folder, those displayed contents will change accordingly. Viewing the current folder "Toronto" as a current object, this corresponds to a document pane. The preview pane of claim 1 is an additional pane that displays information relating to a preview object selected from the K-map. This information may be metadata that is quickly loaded to provide the user with an idea about what the preview object is about. (See at least at page 16 lines 14-19). If the preview information looks interesting, the user can then select the preview

object as the current object, thus causing the document pane to display the preview object. Rochford discloses no such additional pane.

Moreover, amended claim 1 calls for the document pane and the preview pane (as well as the map pane) to be displayed simultaneously. In contrast, the Office Action at ¶ 4 recognizes that the contents of the newly selected child file folder are displayed in place of (not simultaneously with) the list of contents of the previous current object.

**Claim 2** calls for the step of updating to include updating a K-map view selector to correspond to a node view, and for the step of displaying the K-map to include displaying a non-hierarchal node view of the K-map. The amendment specifying the node view as non-hierarchal is supported in the original specification at least at page 17 line 17-18. In contrast, all of the displayed containment hierarchies of Rochford are inherently hierarchal in nature. The non-hierarchal node view is advantageous for broadening the search by enabling the user to locate relevant information which the user may not have been initially aware of. (Page 17 lines 20-24).

**Claim 5** calls for the step of updating to include updating a K-map scope based upon the received user input, and for the step of updating the K-map to include updating the K-map to include objects which are cataloged in the knowledge portal as including content related to the K-map object and having a strength of relationship respective to the K-map object within the updated K-map scope.

The strength of relationship is defined in the original specification at least at page 18 lines 5-7. In accordance with this definition, it will be appreciated that the strength of relationship between two objects does not necessarily correspond their hierarchal relationship. For example, in Rochford's geographical containment hierarchy, the "Toronto" folder may include a file: "Bluejays\_Team.doc" and the "Quebec" folder may include a sub-folder "Montreal" containing a file called "Astros\_Team.doc." The files "Bluejays\_Team.doc" and "Astros\_Team.doc" are rather distantly related in the containment hierarchy, but would typically have a high strength of relationship in the knowledge portal, since both relate to MLB teams. Thus, a K-map employing "Bluejays\_Team.doc" as the K-map object would include "Astros\_Team.doc" even for a low K-map scope, whereas there is no arrangement of the Rochford folder display which would list both "Bluejays\_Team.doc" and "Astros\_Team.doc" at the same time, since they are in different containment folders.

**Claim 6** calls for the step of receiving a user input to include receiving a selection of an updated current object identity from the user through the K-map pane, where the updated current object identity is one of the objects indicated in the map pane. The step of updating includes updating the K-map object to correspond with the updated current object. The step of updating the K-map includes updating the K-map to include objects which are cataloged in the knowledge portal as including content related to the updated current object.

At most, selection of an object in Rochford produces addition or removal of one level of the containment hierarchy. Thus, for example, in Fig. 3 if the user selects "Area 2" then that is added to the hierarchy shown in the upper-left window. If the user selects "Central Ontario" then the "Toronto" entry is removed, and the lower-right window shows the contents of "Central Ontario". In contrast, the method of claim 6 can potentially produce a substantially changed K-map including objects cataloged in the knowledge portal as including content related to the updated current object.

**Claim 7** calls for the step of receiving a user input to include receiving a selection of an updated preview object identity from the user through the K-map pane. The selected object identity is one of the objects indicated in the map pane. Contents associated with the updated preview object are displayed in the preview pane without changing the displaying in the document panel.

As recognized in ¶ 4 of the Office Action, the contents of a newly selected child folder are displayed in place of the previous contents. There is no provision in Rochford for previewing contents of another file or folder without replacing the currently displayed object.

New **claim 40** calls for the preview pane contents associated with the updated preview object and displayed in the preview pane to be metadata stored in the knowledge portal rather than in the preview object itself. This claim is supported in the original specification at least at page 16 lines 16-19. Rochford does not disclose or fairly suggest storing metadata pertaining to objects cataloged in a knowledge portal; indeed, Rochford does not mention the concept of a knowledge portal.

**Claim 8** calls for the step of receiving a user input to include receiving a text entry through user highlighting of text in the document display pane; for the step of updating to include updating the K-map object to correspond with the received text entry; and for the step of updating the K-map to include updating the K-map to include objects which are cataloged in the knowledge portal as including content related to the selected text.

The Office Action at ¶ 11 fails to identify user highlighting of text. Rather, it identifies a search window into which a user inputs text, which is not what claim 8 calls for. Moreover, the search window 46 of Rochford is limited to searching file names, and does not search file content. See Rochford col. 5 lines 37-43. Thus, the search results do not include objects which are cataloged in the knowledge portal as including content related to the selected text.

For at least these reasons, it is respectfully submitted that claims 1-8 and 40 as set forth herein patentably distinguish over the cited references. Accordingly, Applicants ask for allowance of claims 1-8 and 40 as set forth herein.

**Applicants respectfully request reconsideration and allowance of claims 10-18**

**Claim 10** calls for one or more computer programs performed by a computer for: (i) receiving a user input; (ii) updating, based upon the received user input, at least one of a current object identity, a preview object identity, and a K-map parameter; (iii) updating a K-map conditional upon updating a K-map parameter; (iv) displaying in a document pane at least a portion of the current object; (v) displaying in a map pane the K-map; and (vi) displaying in a preview pane contents associated with the preview object.

The Office Action rejects this subject matter by identifying the displayed containment hierarchy with a K-map (i.e., knowledge map). The displayed containment hierarchy is not a knowledge map, at least because the displayed containment hierarchy objects are not selected for display based on similarity of content. Rather, the displayed objects are the path leading to the current object: "Toronto" is contained in "Central Ontario" which is contained in "Canada" which is contained in "North America" which is contained in the topmost "World" folder.

Moreover, there is no preview pane disclosed in Rochford. The Office Action at ¶ 4 equates the same display area as being both the document pane (displaying "Area 1", "Area 2", ...) and the preview pane. Applicants respectfully submit that this display area can at most be identified with the document pane or the preview pane of claim 10, but not with both.

**Claim 14** calls for the step of updating to include updating a K-map scope based upon the received user input; and for the step of updating the K-map to include updating the K-map to include objects within the K-map scope. In rejecting this subject matter, the Office Action asserts that "K-map scope is defined as the subsets of the hierarchy, ie geographic places". (Office Action at ¶ 8).

Applicants respectfully point out that the K-map scope is defined in the present application at least at page 18 lines 1-9 as corresponding to a specified threshold of the strength of relationship. The strength of relationship is determined by factors including, but not limited to, the hierarchal classification relationship. As previously noted in discussing claim 5, two objects may have a high strength of relationship and yet be widely separated in the containment hierarchy. Applicants find no mention of anything corresponding to a K-map scope in Rochford; indeed, Applicants find no mention of a K-map or knowledge map anywhere in Rochford.

**Claim 18** calls for simultaneously displaying the document pane, the map pane, and the preview pane on a single display device. In rejecting this subject matter, the Office Action at ¶ 12 notes: "figure indicates single display, Fig. 9 indicates only one display portion for device." (Office Action ¶ 12). This is consistent with the comment in the Office Action at ¶ 4 that "contents of the newly selected child file folder are displayed in place of the list of contents previously displayed." (¶ 4). It is not consistent, however, with simultaneous display of the document pane and the preview pane. Rather, the cited sections of Rochford teach replacing the displayed contents each time the user selects a new object. In contrast, the present application teaches providing simultaneously displayed document and preview panes, as called for in claim 18, thus enabling the user to preview metadata or other quickly loaded data about a preview object while continuing to display the current object.

For at least these reasons, it is respectfully submitted that claims 10-18 patentably distinguish over the cited references. Accordingly, Applicants ask for reconsideration and allowance of claims 10-18.

#### **Claims 19-22, 24-26, and 41 patentably distinguish over the references of record**

**Claim 19** calls for an article of manufacture comprising a program storage medium readable by a computer and embodying one or more instructions executable by the computer to perform method steps for executing an operation to perform a user interface method for interfacing an associated user with a knowledge portal operatively associated with a plurality of data objects. The method comprises the steps of: generating a knowledge portal catalog cataloging data objects based on content; displaying in a document pane at least a portion of a current object; constructing a K-map identifying related objects having content related to a K-map object as measured by a strength of relationship between the related object and the K-map object; displaying in a map pane the K-map;



and displaying in a preview pane contents associated with a preview object selected from the related objects, the preview pane being displayed simultaneously with the document pane and the map pane.

Rochford does not disclose or fairly suggest generating a knowledge portal catalog cataloging data objects based on content. Rather, Rochford concerns exclusively conventional containment hierarchies. The containment hierarchies of Rochford do not inquire into the content of the contained files so as to generate strengths of relationships between related objects. Still further, Rochford does not disclose or fairly suggest a preview pane as called for in claim 19, which is displayed simultaneously with the document pane and the map pane.

**Claim 20** calls for the step of displaying in a map pane the K-map to include displaying a node view of the K-map which is limited to related objects having a strength of relationship respective to the K-map object greater than a specified value. This amendment is supported in the original specification at least at page 18 lines 1-9. Applicants find no node view whatsoever in Rochford, much less a node view limited to related objects having a strength of relationship respective to the K-map object greater than a specified value.

**Claim 25** calls for receiving a selection of the preview object identity from the user through the K-map pane. As set forth in base claim 19, contents associated with the preview object are displayed in the preview pane. The preview pane is displayed simultaneously with the document pane and the map pane. At most, Rochford discloses updating a document pane with contents of an updated current object. There is no provision to preview another object while continuing to simultaneously display the current object, as called for in claim 25.

New **claim 41** calls for the method to further include updating the K-map object to correspond to one of a group consisting of: (i) a double-clicked K-map entry, (ii) text in the document pane that is highlighted by a user, and (iii) one or more search terms entered by a user. The displayed K-map is updated to identify at least (i) related objects having content related to the updated K-map object, and (ii) a measure of a strength of relationship between each related object and the updated K-map object. The Markush group of claim 41 is supported in the original specification at least at page 20 line 4 through page 21 line 10.

For at least these reasons, it is respectfully submitted that claims 19-22, 24-26, and 41 as set forth herein patentably distinguish over the cited references. Accordingly, Applicants ask for allowance of claims 19-22, 24-26, and 41 as set forth herein.

**Claims 28-39 patentably distinguish over the references of record**

**Claim 28** calls for a user interface for interfacing an associated user with a knowledge portal that is operatively associated with a plurality of data objects. A means is provided for receiving a user input. A K-map processor calculates a K-map corresponding to a current object and a set of K-map parameters. The K-map identifies objects indicated by a catalog of the knowledge portal as having content related to the current object. A current object display pane displays at least a portion of the current object. A K-map display pane displays the K-map. A preview pane different from the current object display pane displays contents corresponding to a preview object.

Rochford does not disclose a K-map processor that calculates a K-map corresponding to a current object and a set of K-map parameters, where the K-map identifies objects indicated by a catalog of the knowledge portal as having content related to the current object. The containment hierarchies of Rochford do not identify objects indicated by a catalog of the knowledge portal as having content related to the current object. Indeed, Rochford does not mention a knowledge portal or a knowledge portal catalog.

Rochford also does not disclose a preview pane different from the current object display pane. Rochford teaches a single display region that shows the contents of the current object, but does not provide for displaying contents corresponding to a preview object.

**Claim 29** calls for the K-map display pane to display the K-map in a non-hierarchal node view. The amendment specifying the node view as non-hierarchal is supported in the original specification at least at page 17 line 17-18. In contrast, Rochford relates exclusively to containment hierarchies, which by definition are hierarchal.

**Claim 30** calls for the set of K-map parameters to include a class parameter, and the K-map processor calculates a K-map containing objects limited to objects corresponding to the class parameter. Insofar as Rochford does not disclose or fairly suggest a K-map processor, it does not disclose a class parameter used by a K-map processor to limit the objects indicated by a catalog of the knowledge portal as having content related to the current object to objects corresponding to the class parameter.

**Claim 33** calls for the set of K-map parameters includes a scope parameter, and for the K-map processor to calculate a K-map containing objects limited to objects whose relationship to the

current object falls within the scope parameter value. The Office Action at ¶ 21 rejects this claim asserting that the "K-map displayed only within scope of value in 40" (Office Action at ¶ 21). This apparently refers to the "Show by" categories "geography" and "type" shown in Fig. 3. However, at most the selection between the "geography" and "type" containment hierarchies changes the ordering of the files within the hierarchy – it does not exclude any files, but merely rearranges them.

**Claim 37** calls for the means for receiving a user input to include a pointing device selection means operative at least within the K-map display pane, and for the preview object to be selectively updateable by the user via the pointing device selection means operating within the K-map display pane. The updating of the preview object does not affect the current object display pane. Rochford does not have a preview pane that is updateable independent of a current object display pane.

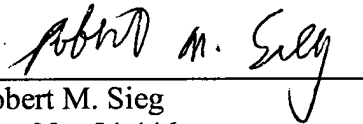
For at least these reasons, it is respectfully submitted that claims 28-39 as set forth herein patentably distinguish over the cited references. Accordingly, Applicants ask for allowance of claims 28-39 as set forth herein.

**CONCLUSION**

In view of the foregoing amendments and remarks, it is respectfully submitted that claims 1-8, 10-22, 24-26, and 28-41 as set forth herein are in condition for allowance. Notice to that effect is respectfully requested at the earliest possible date.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Robert M. Sieg", is written over a horizontal line.

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